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Reg. No. | | | | | | | | |

II Semester BCA.4/B.Sc.4/BSST Degree Examination, May - 2019

HINDI

Paper Basic (2016-17)

(Repeater/Regular)

(1) काव्य सरगम (2) सामान्य निबन्ध (3) अनुवाद

Time : 3 Hours

Max. Marks : 80

I. **किन्हीं दस** प्रश्नों का उत्तर लिखिए : **10x1=10**

1. काव्य सरगम इन संग्रह के प्रकाशन का नाम _____ है।
   (अ) लोकभारती (आ) वाणी (इ) सौम्य

2. 'हिमाद्रि तुंग श्रृंग से' कविता के रचनाकार _____ हैं।
   (अ) कबीर (आ) जयशंकर प्रसाद (इ) नरेश मेहता

3. 'राष्ट्रकवि के रूप में _____ कवि प्रसिद्ध है।
   (अ) मैथिलीशरण गुप्त (आ) महादेवी वर्मा (इ) अज्ञेय

4. महादेवी वर्मा को _____ कहा जाता है।
   (अ) प्रगतीवादी कवि (आ) आधुनिक मीरा (इ) राष्ट्रकवि

5. मैथिलीशरण गुप्तजी का जन्म _____ नामक गाँव में हुआ।
   (अ) बनारस (आ) पाटणा (इ) चिरगाँव

6. 'निराला जी' _____ के प्रमुख प्रतिनिधि कवि हैं।
   (अ) छायावाद (आ) हालावाद (इ) प्रयोगवाद

P.T.O.

7. सुदामा पांडे का काव्य नाम _____ है।

(अ) अज्ञेय (आ) धुमिल (इ) दिनकर

8. ''मैं नीर भरी दु:ख की बदली'' इस कविता के रचियता कौन हैं।

(अ) अज्ञेय (आ) महादेवी वर्मा (इ) सुमित्रानंदन पंत

9. ''हिंदी दिवस'' कब मनाया जाता है?

(अ) 10 अक्टुबर (आ) 14 सितंबर (इ) 26 जानेवारी

10. सुमित्रानंदन पंत जी ने लिखी हुई कविता का नाम _____ है।

(अ) ताज (आ) फसल (इ) बीस साल बाद

11. अज्ञेय जी का नाम _____ है।

(अ) रामानंद (आ) सच्चिदानंन्द हीरानन्द वात्सायन (इ) रहीम

12. मुक्ति बोध की कविता का नाम _____ है।

(अ) वक्त (आ) ताज (इ) मैं तुम लोगों से दूर हैं

13. 'यामा' किस पुरस्कार से सम्मानित कृति है?

(अ) पद्मभूषण (आ) ज्ञानपीठ (इ) नोबेल

14. रामाधारी सिंह दिनकर की ललकार किसके प्रति है?

(अ) सागर (आ) हिमालय (इ) नदी

15. बच्चन जी की कविता का नाम क्या है।

(अ) इन्सान और कुत्ते (आ) ताज (इ) किरण

II. संदर्भसह स्पष्टिकरण दीजिए। **(कोई तीन)** 3x5=15

1. मनुष्यता मात्र बन्धु है'' यही बडा विवेक है,

   पुराण पुरुष पिता तो प्रसिद्ध एक है।

   फलानुसार कर्म के अवश्य बाह्य भेद है,

   परंतु अंतरैक्य में प्रमाणभूत वेद है।

2. हिमाद्रि तुंग श्रृंग से

   प्रबुद्ध शुद्ध भारती

   स्वयं प्रभा समुज्ज्वला

   स्वतंत्रता पुकारती।

3. सुनी मैंने वह नहीं जो थी सुनी झंकार

   एक क्षण के बाद वह काँपी सुधर,

   ढुलक माथे से गिरे सीकर,

   लीन होते कर्म में फिर ज्यों कहा–

   ''मैं तोड़ती पत्थर।''

4. प्रथम रश्मि का आना रंगिणि,

   तूने कैसे पहचाना ?

   कहाँ कहाँ हे बाल – विहंगिनि'.

   पाया, तूने यह गाना ?

5. तू मौन त्याग कर सिंहनाद,

   रे तपी आज तप का न काल।

   नवयुग–शंख ध्वनि जगा रही,

   तू जाग जाग, मेरे विशाल।

III. **किन्हीं दो** प्रश्नों के उत्तर लिखिए : **2x10=20**

1. 'मनुष्यता' इस कविता का भावार्थ लिखिए।
2. 'जागो फिर एक बार' इस कविता मूल आशय स्पष्ट कीजिए।
3. 'प्रथम रश्मि का आना' कविता में व्यक्त भाव को रेखांकित कीजिए।
4. किरण कविता पर लेख लिखिए।

IV. **किन्हीं दो** कविताओं का सार लिखिए। **2x5=10**

1. वह तोड़ती पत्थर
2. फसल
3. ठंडा लोहा
4. वक्त

V. **किसी एक** विषय पर निबंध : **1x15=15**

1. भारत और भ्रष्टाचार
2. लोकसभा चुनाव
3. प्रकृति का प्रकोप

VI. हिंदी में अनुवाद कीजिए : **1x10=10**

ಒಳ್ಳೆಯ ಶಿಕ್ಷಕರು ಹಾಗೂ ಒಳ್ಳೆಯ ವಿದ್ಯಾರ್ಥಿಗಳು ಪರಿಶ್ರಮ ಪಡುತ್ತಾರೆ. ಇವರ ತತ್ವವು ಇಂತಿದೆ 'ನೀನು ನಿನ್ನ ಕರ್ತವ್ಯವನ್ನು ಚೆನ್ನಾಗಿ ಮಾಡು ಮತ್ತು ಪರಿಣಾಮವನ್ನು ದೇವರಿಗೆ ಬಿಟ್ಟುಕೊಡು'. ಆದರೆ ಅನೇಕ ದಡ್ಡರು, ಹೇಡಿಗಳು, ಸ್ವಾರ್ಥಿಗಳು, ಕ್ರೂರರು ಮಾನಸಿಕವಾಗಿ ದುರ್ಬಲರಾಗಿದ್ದಾರೆ. ಧೈರ್ಯಶೀಲರು ಹಾಗೂ ಹುರುಪಿನವರ ಮುಂದೆ ಇವರ ತರ್ಕಹೀನ ವಿಚಾರವಾದವನ್ನು ಆಚರಣೆಯಲ್ಲ ಇಟ್ಟುಕೊಳ್ಳುತ್ತಾರೆ. ಒಳ್ಳೆಯ ವ್ಯಕ್ತಿಗಳಿಗೆ ಆದರ್ಶಪ್ರಾಯವಾದ ಚರಿತ್ರೆ ಇರುತ್ತದೆ.

The good teachers and the good students work hard. A principle of these is Do your duty well and leave the result to the God. But there are many dullars, cowards, selfish, hostiles and imbesils. These practice paralogism before men of footitude and promptitude. The good persons have an exemplary character.

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II Semester B.C.A. 4 Degree Examination, May - 2019

DATA STRUCTURE USING 'C'

Theory
(RUC - 2017-18)

Time : 3 Hours Maximum. Marks : 80

Instructions : *(1) Answer all sections.*

(2) Draw neat diagrams wherever necessary.

(3) Write question numbers correctly.

SECTION - A

1. Answer **all** questions : **10x2=20**

(a) What is pointer to pointer ? How to declare it ?

(b) What is a file ? Mention its different access modes.

(c) What is Static Memory Allocation ?

(d) What are primitive and non-primitive data structures ? Give examples.

(e) What is LIFO ? List applications of it.

(f) What are the drawbacks of ordinary queue ?

(g) Write the syntax of any two file input functions.

(h) Differentiate between singly linked list and doubly linked list.

(i) What is empty linked list ?

(j) What is priority queue ? Mention different types of it.

P.T.O.

SECTION - B

Answer **any four** questions : 4x5=20

2. Write a program in C to print sum of array elements using Dynamic Memory Allocation.

3. Explain the concept of Bubble Sort technique with an example.

4. Write a note on Tower of Hanoi.

5. A circular queue, the size which is 5 has 3 elements, 40, 86, 31 where f=2 and r=4. After inserting 20 and 65, what is the value of f and r ? Trying to insert an element 70 at this stage, what will happen ? Delete 2 elements from queue and insert 25. Now what is the value of f and r ?

6. Explain circular linked list.

SECTION - C

Answer **any four** questions. 4x10=40

7. What is Dynamic Memory Allocation ? Explain DMA functions.

8. (a) Write a program in C to print n fibonacci numbers using recursion. 5

   (b) Convert the following expressions to postfix :

   (i) $((A*(B+C))/(D)-F$ 3

   (ii) $(x+y)*(m/n+d)$ 2

9. Apply quicksort technique and sort the following numbers in ascending order. Also write quicksort function for the same.
   56, 24, 43, 92, 52, 41, 32.

10. What is queue ? Explain different types of queues.

11. Write short notes on **any two** : 5+5

   (i) Pointer and structures.

   (ii) Components of linked list.

   (iii) File I/O functions.

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(i) Evaluate $\int(2x^3+3x^2-4x+5)\,dx$

(j) Evaluate $\int \tan x \sec^2 x\,dx$

PART - B

Answer **any four** of the following : **4x5=20**

2. Solve by Cramer's Rule :

$x+y+z=7$

$2x+3y+2z=17$

$4x+9y+z=37$

3. Evaluate $\lim_{x\to 2} \dfrac{x^2-4}{\sqrt{x+2}-\sqrt{3x-2}}$

4. If $y=\dfrac{1+x^2}{1-x^2}$ find $\dfrac{dy}{dx}$

5. If $y=\sin(ax+b)$ find $\dfrac{d^2y}{dx^2}$

6. Evaluate $\int x\cos x\,dx$

PART - C

Answer **any four** full questions : **4x10=40**

7. (a) Test for convergence of the series whose n^{th} term is $\dfrac{2^n}{n^3}$ by De' Alemberts Ratio test. **5+5**

(b) Examine the convergence of the series $\sum \dfrac{n^3}{3^n}$ by Couchy's Root test.

8. (a) Verify Cayley Hamilton theorem for the matrix $\begin{bmatrix} 3 & 7 \\ 1 & 2 \end{bmatrix}$ 5+5

(b) Find the inverse of the matrix $A = \begin{bmatrix} 3 & -2 \\ 1 & 4 \end{bmatrix}$

9. (a) Show that the function $f(x)$ defined by 8+2

$$f(x) = \begin{cases} x + 1 & \text{when} \quad x < 0 \\ x & \text{when} \quad 0 \le x \le 1 \\ 2 - x & \text{when} \quad 1 \le x \le 2 \end{cases}$$

has a point of discontinuity at $x = 0$, but it is continuous at $x = 1$.

(b) Differentiate w.r.t. x : $x^3 \log x$.

10. (a) Verify Rolle's theorem for the function $f(x) = x^2 + 2x - 8$ in the interval $[-4, 2]$. 5+5

(b) Find the maximum and minimum values of the function $y = x^3 - 12x + 5$.

11. (a) Evaluate $\int \frac{3}{(x+2)(x-1)} dx$ 5+5

(b) Evaluate $\int \sin^4 x \cos x \, dx$

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II Semester BCA4 Degree Examination, May - 2019

FINANCIAL MANAGEMENT

Theory

(RCU Fresh 2017 - 18)

Time : 3 Hours

Max. Marks : 80

Instructions : (1) *Attempt all Sections according to internal choice.*

(2) *Simple and non-programmable calculator are allowed.*

SECTION - A

1. Answer the followings : 10x2=20

(a) What is Current Ratio ?

(b) What is marginal costing ?

(c) Expand B.E.P.

(d) What is P.V. Ratio ?

(e) What is standard costing ?

(f) Give two example for current liability.

(g) What is prime cost ?

(h) What is contribution ?

(i) Write two features of Joint Stock Company.

(j) What is overhead ?

SECTION - B

Answer **any four** questions : 4x5=20

2. Write the functions of cost accounting.

3. What is role of management accounting.

4. Distinguish between cost accounting and management accounting.

P.T.O.

5. From the following P & L A/c calculate funds from operations :

Particulars	₹	Particulars	₹
To Rent Paid	50,000	By Gross Profit	8,00,000
To Salaries	2,00,000	By Profit on Sale of Machinery	10,000
To Provision for depreciation	1,00,000	By Refund of tax	6,000
To Commission	20,000	By Dividend Received	24,000
To Provision for Taxation	1,20,000		
To Provision for Contingency	10,000		
To Loss on sale of invest	20,000		
To Cost of issue of shares written off	4,000		
To Goodwill written off	10,000		
To Net Profit	3,06,000		
	8,40,000		8,40,000

6. Calculate cash from operating activities from the following data for the year ended 31-3-2018 (Direct method).

		₹
Receipts from Debtors		15,00,000
Cash sales		3,00,000
Commission & Brokerage Received		1,50,000
Payment to Suppliers		4,50,000
Cash Purchases		60,000
O/S Salaries		15,000
Cash Payments		
Salaries	30,000	
Rent	15,000	
Repairs	5,000	50,000
Proceedes from Relief fund settlement		₹ 20,000
Tax paid		₹ 50,000

SECTION - C

Answer the followings **any four**. **4x10=40**

7. From the following particulars prepare cost sheet of Ishwar Co.

	₹
Raw Material on 1-4-17	80,000
Raw Material on 31-3-18	90,000
Opening finished goods	1,25,000
Closing finished goods	3,20,000
Direct wages	1,00,000
Material purchased	2,70,000
Work Manager salary	80,000
Factory Rents	20,000
Printing & Stationary	45,000
Salary	1,00,000
Advertisement	20,000
Free Gifts & Sample	30,000
Delivery Motor Van	1,00,000
Sales	9,00,000

8. From the following particulars, find out :

(a) P.V. Ratio

(b) B.E.P.

(c) Net Profit from Sale of ₹ 1,30,000

(d) Sales to be effected to earn a net profit of ₹ 10,000

The position of the Company for the year 2018

Sales	1,20,000
Variable overheads	96,000
Gross profit	24,000
Fixed overheads	16,000
Net Profit	8,000

9. The Balance sheet of Dhanlaxmi Co. as on 31-3-2018.

Liabilities	₹	Assets	₹
Equity share Capital	1,00,000	Building	1,25,000
Reserves & surplus	75,000	Furniture	50,000
10% Debenture	80,000	Stock	85,000
Bill Payable	15,000	Debtors	35,000
Creditors	30,000	Cash	5,000
	3,00,000		3,00,000

Calculate Current Ratio, Quick Ratio, Debt equity Ratio, Proprietory Ratio.

10. From the following Balances Sheet of Kawleshwar Ltd. Prepare :

(a) Funds from operations

(b) Schedule changes in working capital

Particulars	1 - 4 - 17 ₹	31 - 3 - 18 ₹
Liabilities :		
Equity share capital	1,00,000	1,20,000
Share Premium	-	10,000
General Reserve	6,000	11,000
Profit & Loss A/c	7,500	20,700
8% Debenture	-	26,000
Provision for Taxation	9,800	10,900
Sundry Creditors	33,500	36,400
Proposed Dividend	10,000	12,000
	1,66,800	2,47,000
Assets :		
Building	55,400	1,13,200
Machinery	35,600	51,300
Furniture	2,400	2,500
Stock	36,500	38,000
Sundry Debtors	32,100	38,000
Cash @ Bank	4,800	4,000
	1,66,800	2,47,000

During the year depreciation on Machinery ₹ 12,000 and on furniture ₹ 400.

11. From the following Balances of Basavaraj & Co., prepare Trading Profit & Loss A/c and Position Statement.

Sl. No.	Particulars	Dr.	Cr.
01	Opening Stock	45,000	-
02	Purchases/Sales	80,000	2,00,000
03	Wages	34,000	-
04	Salary	11,500	-
05	Rent	3,000	-
06	Debtors / Creditors	70,000	50,000
07	Building	1,00,000	-
08	Machinery	80,000	-
09	Furniture	25,000	-
10	Drawings / Capital	10,000	2,10,000
11	Bills Receivable / Payable	7,000	6,500
12	Commission Received	-	10,000
13	Returns	4,000	2,000
14	Cash	9,000	-
		4,78,500	4,78,500

Adjustments :

(1) Closing Stock on 31-3-18 ₹ 50,000

(2) O/S Salary ₹ 1,000

(3) P.D.D. 5% On Debtors

(4) Depreciation on Machinery and Furniture @ 10% p.a.

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II Semester B.C.A.4 Degree Examination, May - 2019

DIGITAL LOGIC AND COMPUTER DESIGN

(RCU Regular and Repeater 2017 - 18)

Theory

Time : 3 Hours Max. Marks : 80

Instructions : *(1)* ***All*** *Sections are* ***compulsory.***

(2) Draw neat diagrams wherever necessary.

SECTION - A

1. Answer **all** the questions each carries **two** marks. **10x2=20**

(a) Define binary number system. Give one example.

(b) Convert $153_{(10)}$ into binary number.

(c) Prove that $x + xy = x$.

(d) What are Don't care conditions ?

(e) What are combinational circuits ? Give one example.

(f) Define terms :

(i) Demultiplexer (ii) Multiplexer

(g) What are sequential circuits ? Give one example.

(h) Write excitation table for SR flip-flop.

(i) What is RAM ? Mention types of RAM.

(j) Write steps involved in Memory Write and Memory Read operations.

SECTION - B

Answer **any four** questions each carries **five** marks. **4x5=20**

2. Explain digital computer system with a neat block diagram.

3. Implement the following Boolean function with only using NAND gates.

F(A, B, C) = A'C + ABC + AB'

P.T.O.

4. What is decoder ? Explain 3-to-8 line decoder.

5. Write a note on shift register.

6. Implement the following Boolean Function using PLA (Programmable Logic Array)
$F_1 = AB' + AC + A'BC'$
$F_2 = (AC + BC)'$

SECTION - C

Answer **any four** questions each carries **ten** marks. **4x10=40**

7. Briefly explain signed binary numbers.

8. Simplify the following Boolean Function using K-map and draw minimized circuit.
$F(A, B, C, D) = A'BC' + (A \oplus B)C + A'BCD' + ABC$

9. Explain Half adder and Full adder with logic circuit and truth table.

10. Explain the following : **5+5**
(a) Ripple counters (b) Synchronous counters

11. Explain ROM (Read Only Memory) with its types.

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II Semester BCA3 Degree Examination, May - 2019

CALCULUS

(RCU New Syllabus Repeaters)

Theory

Time : 3 Hours Max. Marks : 80

***Instructions** : Answer **all** sections.*

SECTION - A

Answer **any ten** of the following : **10x2=20**

1. (a) A wire of length 10 cm is bent into the arc of a circle of radius 4 cm. What is the angle at the centre in radians ?

(b) If $\sin A = \frac{1}{4}$ and A is acute find cos A.

(c) Prove that $\sin\theta \cdot \sec\theta \cdot \cot\theta = 1$.

(d) Express $\frac{3-4i}{3+4i}$ in the form $x+iy$.

(e) Simplify : $\frac{(\cos 4\theta + i\sin 4\theta)^4}{(\cos 3\theta - i\sin 3\theta)^2}$

(f) $\lim_{\theta \to 0} \frac{\sin 5\theta}{\theta}$.

(g) Evaluate $\lim_{x \to 5} \frac{x^3 - 125}{x - 5}$

(h) Differentiate : $2x^4 - 4x^3 + 3x^2 - x + 7$ w.r.t. x.

(i) If $y = (ax+b)^m$ find dy/dx.

(j) $\int x\left(\sqrt{x} + 1\right) dx$

P.T.O.

(k) $\int_0^{\pi/4} \sec^2 x \, dx$

(l) Evaluate $\lim_{x \to 1} (2x^2 - 3x + 4)$.

SECTION - B

Answer **any four** of the following : **4x5=20**

2. Prove that $\sqrt{\frac{1 + \sin \theta}{1 - \sin \theta}} = \sec \theta + \tan \theta$.

3. The angle of elevation of the top of a tower at a distance of 100 meters is 30°, find its height.

4. Find the cube root of $1 + \sqrt{3}\, i$.

5. Evaluate $\lim_{x \to 3} \frac{x^2 - 9}{\sqrt{3x + 7} - \sqrt{5x + 1}}$

6. Differentiate $x^2 \sin x$ w.r.t. 'x'.

7. Evaluate $\int x \sin x \, dx$.

SECTION - C

Answer **any four** of the following : **4x10=40**

8. (a) Find the value of 'x' if

$$x \sin 45° \cos 60° = \frac{\tan^2 60° \cdot \operatorname{cosec} 30°}{\sec 45° \cdot \cot^2 30°}$$

(b) If $\tan A = \frac{1}{2}$ and $\tan B = \frac{1}{3}$ find

(i) $\tan (A + B)$ and

(ii) $\tan (A - B)$.

9. (a) Simplify $\dfrac{(\cos 6\theta - i\sin 6\theta)^3 (\cos 2\theta + i\sin 2\theta)^{-7}}{(\cos 5\theta + i\sin 5\theta)^{-4} (\cos\theta + i\sin\theta)^8}$

(b) Find the conjugate of the complex number and express it in the form $x+iy$,

$z=\dfrac{1-2i}{3+4i} + \dfrac{i-3}{i}$

10. (a) Discuss the continuity of the function $f(x)$ defined by

$$f(x) = \begin{cases} x^2, \text{ if } x<1 \\ x^2 - \dfrac{1}{2}, \text{ if } x \geq 1 \end{cases} \text{ at } x=1$$

(b) Evaluate $\lim\limits_{\theta\to 0} \dfrac{\tan a\theta}{\tan b\theta}$

11. (a) Find $\dfrac{d^2y}{dx^2}$ if $y=ax^3+bx^2+cx+d$

(b) Find $\dfrac{dy}{dx}$ if $x=\cos^3\theta$ and $y=\sin^3\theta$

12. (a) Evaluate $\int \dfrac{2x+1}{(x-1)(x+2)}\,dx$

(b) Find the area bounded by the curve $y=x^2+x+2$, x-axis and the ordinates at $x=1$, $x=2$.

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